

# SCIENCE & GOVERNMENT REPORT

15th Year of Publication

The Independent Bulletin of Science Policy

Volume XV, Number 7

P.O. Box 6226A, Washington, D.C. 20015

April 15, 1985

## *5 Percent Reserved for Basic Research*

### Star Wars: Budgeting Big for University Science

While debate continues over the political wisdom and technical feasibility of the Administration's Strategic Defense Initiative (SDI), or Star Wars program, SDI research is actually being planned and contracted for in a Gold Rush spirit reminiscent of the robust startup days of the Apollo moon-landing program.

Industry will receive the bulk of SDI's spending, but with little public notice, a significant slice of the multi-billion program has been specifically reserved for "mission-oriented basic research" in universities and small business firms. And, as the word has got around, both sectors have been flocking to Washington to compete for shares of what is shaping up as the biggest bundle of "new" money aimed at the science economy in over a decade—some \$250 million a year, according to present plans.

SDI opponents are warning that, regardless of what it produces in research, SDI support for industry and academe is producing a dependent and, in turn, supportive

constituency for the program. That's sure to be the case, but anyone who wants to debate the pros and cons of SDI should be alert to the danger of being trampled in the professorial-entrepreneurial stampede for contracts.

The fount of SDI's basic-science money is its Innovative Science and Technology Office (IST), which, barring an unexpected political derailment, is to dispense 5 percent of the \$26 billion that the Administration plans to spend on SDI research over the next 5 years.

A visit to the IST headquarters, located in a tacky federal building at 1717 H St. Nw. in the heart of downtown Washington, reveals makeshift offices filled with odds and ends of furniture, file cabinets, and equipment, along with heaps of files and papers stacked here and there. In contrast to the carpeted and settled ambience of oldline research agencies such as NSF, NIH, and NASA, there's a frontier spirit to the place. And, in contrast to the zero-sum thinking that pervades program planning in Washington these days, SDI's science planning reflects a go-go spirit.

In charge of the SDI's basic science program is a 34-year-old physicist, James A. Ionson, who formerly directed research on theoretical plasma astrophysics at NASA's Goddard Space Flight Center, which he joined in 1977 upon receiving a PhD from the University of Maryland. With an extensive publication record in astrophysics, Ionson, widely regarded as one of NASA's brightest young men, proposed the office he now heads and talked his way into the job.

Ionson spoke April 2 with SGR editor Greenberg. The following is from that conversation, transcribed and edited by SGR.

*SGR. How did this office get started?*

IONSON. I suggested it to General [James] Abrahamson [manager of the SDI program]. He was [formerly] at NASA, and I had heard about this program. I came over and I spoke to him. This office is not one of the Congressionally mandated program elements for SDI. We work from a "tax" off of these program elements. Currently it's 5 percent of the overall budget. The entire [SDI] program for the next 4-5 years is \$26 billion. So, 5 percent of that is a significant amount of money—over a billion dollars over the next few years.

*SGR. What will you spend in this fiscal year?*

*(Continued on page 3)*

## In Brief

In the tradition of talking rope in a hanged man's house, Senator Alfonse D'Amato (R-NY) on April 3 hailed NSF's announcement of an Engineering Research Center award for Columbia University with a press release proclaiming: "I am pleased to have been associated with the designation of Columbia University" to receive the award. D'Amato noted, too, that he sits on the Subcommittee "which funds the National Science Foundation."

*D'Amato didn't note that NSF's Board recently condemned Columbia, among others, for a pork-barrel raid that netted a chemistry building for the Department of Energy budget in 1983 (SGR Vol. XV, No. 4). Asked about D'Amato's claimed association with the engineering award, NSF Director Erich Bloch icily replied that D'Amato had nothing to do with it.*

Meanwhile, Presidential Science Adviser George A. Keyworth II has deplored the campaign that's showered him with "literally thousands of letters" to restore cuts in NIH grants. Arguing that the issue is quality, rather than numbers, Keyworth told the AAAS R&D Colloquium, "Too many scientists have only one mode of discussing federal funding for science—and that's to predict disaster unless they get more."

## Bell Labs R&D Chief Knocks the Big Accelerator

*Hostile firing from the sidelines is increasingly heard in Washington as particle physics' biggest-ever machine, the proposed Superconducting Super Collider (SSC), estimated at \$6 billion, moves through the review process (SGR Vol. XV, No. 6). The latest to join in is Nobel physicist Arno A. Penzias, Vice President for Research, AT&T Bell Laboratories, in an appearance April 3 in Washington before the 10th Annual AAAS Colloquium on R&D Policy. Following a critical reference to particle physics in his invited talk on "Public and Private Sector Roles in R&D," Penzias was asked to elaborate before his audience of some 600, and replied, in part, as follows:*

I do this with considerable trepidation, because [particle physics] is such an easy target . . . I think I, as a citizen, ought to say a couple of things about things which are large, visible, and removed from everyday experience. I think there has been a fallacious connection made between the present state of particle physics and quantum mechanics. People will say, In the 1930s, who knew that quantum mechanics was going to be good for anything?

The difference is that in the 1930s, as it was even in the days of the caveman, quantum mechanics applied to everyday experience. You have to do nothing more than urinate into a fire to cause a quantum-mechanical effect. There are transitions in salt whose energy-level-difference laws are set by quantum mechanics which say that excited salt atoms are yellow . . . That's quantum mechanics, but it deals with a world which is accessible to us in our everyday experience.

When we talk about resonances in structures which are so far removed from any conceivable human, industrial, or military act—these are things which are unrelated to any conceivable combination of human acts.

Therefore, let us not pretend that what we experiment [with in particle physics] is, in fact, going to illuminate what happens in that part of the arena of our knowledge and experience that's useful for us. It

is the same story as hunting for the nickel under the streetlight when you dropped it somewhere else.

And so, when we speak about it, we wrap ourselves in the flag of saying it is basic. Yes, it is basic, but one of the things you don't get away with me at Bell Labs about is, Is it basic? I don't care if things are basic or not. I want them to be interesting. And the question is, When you are done, what will you do differently?

I might say exactly the same thing about manufacturing in space. What will I do differently if someone brings me an allegedly perfect crystal which is 3 millimeters on a side instead of 2 millimeters on a side? . . . What am I going to do differently when I get it?

It's not the \$6 billion [for the SSC] that bothers me. What bothers me are those 40 names on each of those papers in *Physical Review Letters*. What else could those people be doing? They are among the brightest human beings in this country today . . . I am saying that if we set up a society which says the biggest, the most glamorous, the most high-powered, the most prestigious, the most arcane, the smallest is *the* thing—go after it. And then we find our best people going after it, then we are in trouble, because we don't have a lot of those best people.

The day is past . . . when the physicists can go out and do anything. Physicists, as I know, being an ex-physicist myself, have long been the most arrogant of people. Because a physicist studies a smaller part of nature than the chemist, the chemist a smaller part of nature than the biologist, and so forth . . . The hierarchy is the smaller the thing you study, the more blessed you are. But physicists, as a group, have always said we can do anything . . . The particle physicist, after spending 3 or 4 or 5 years in the tunnel, protecting his 200 or 300 yards . . . or building his piece of it . . . has worked his way up from number 16 to number 4 on the paper and is about to graduate . . . can say I can always be a computer scientist now, because I've used computers all along.

That is no longer true, folks. Computer science has become a very esoteric art . . .

ISSN 0048-9581

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Independently published by Science & Government Report, Inc., twice monthly, except once each in January, July & August. Annual subscription: Institutions, \$158.00 (two years, \$275.00). Information about bulk and individual rates upon request. Editorial offices at 3736 Kanawha St. N.W., Washington, DC 20015. Tel. (202) 244-4135. Second-class postage at Washington, D.C. Please address all subscription correspondence to Box 6226A, Northwest Station, Washington, DC 20015. Reproduction without permission is prohibited. SGR is available on Xerox University Microfilms. Claims for missing back issues will be filled without charge if made within six months of publication date.

## ... SDI's Lure: "People Go Where the Bucks Are"

(Continued from page 1)

IONSON. Twenty-eight million dollars in '85. For 1986, I really don't know, but I can tell you what we could use. At least \$150 million. Even that wouldn't dry up the intellectual market out there.

SGR. Does this suggest that there's a lot of slack capacity?

IONSON. People go where the bucks are. There is a lot of money involved here. And there are a lot of interesting science and technology problems. Even if someone is not an [SDI] advocate, there's still a lot to be gained—a lot of good science and the opportunity to perform that science. The only constraint is that it is mission-oriented. People are shifting gears a little bit.

SGR. Then this is very different from NSF's traditional interest in basic research without a specific purpose in view.

IONSON. That's not our mode at all. This is mission-oriented basic science. The luxury to go off and sit in an ivory tower and do wonderful good science, what's in your own mind good science, that's a luxury that this country may not be able to afford for a while. But it still has to be done. That's why NSF is there. But that's not why we're here.

### Shares of the Budget

SGR. What will be the division of the budget among universities, government labs, and private industry?

IONSON. The work being done by government employees will be a very small fraction compared to what's done in the universities. I would say that over 50 percent of the money will go to academia. The majority of whatever's left will go into the small business community.

SGR. Is this "new" money or is it merely a reshuffling of previously planned spending?

IONSON. New money. Brand new money. These are new efforts. One particular area is the non-nuclear space power—advanced concepts. It's the program for our first consortium of universities: Auburn University; University of Texas, at Arlington; Texas Tech, in Lubbock; State University of New York, in Buffalo, and New York Polytechnic, in Brooklyn. They're sharing \$19 million over the next 3 years.

Probably within a month, we'll be in a position to release the names of a number of other consortia. Our prime implementation here is to put together consortia of universities and businesses to stimulate the flow of technology ideas.

We do not do the actual contracting ourselves. The Army, Navy, Air Force do the contracting for us. We have at our disposal their people who work for us as science and technology agents, program managers, that

### Industry in Line for SDI Gold

Innovative Science and Technology is one of 6 research-related directorates in the rapidly expanding Star Wars empire.

The others are titled: Systems/Affordability; Sensors; Kinetic Energy; Directed Energy; and Survivability, Lethality, and Key Technologies.

If the Administration gets its way, they'll manage the spending of virtually all of the \$26 billion that's planned for the Strategic Defense Initiative over the next 5 years. What happens after that is uncertain, since the Administration, hemmed in by the Anti-Ballistic Missile Treaty, insists that the SDI is purely a research program at this point—which is permissible under the treaty.

Will SDI get the money? Maybe not all of, but so far it looks as though it's going to get a great deal. Of the \$3.7 billion requested for fiscal 1986, the Senate Armed Services Committee has approved all but \$300 million. Many Congressional hurdles remain, but all the while the program is developing a powerful clientele in industry, where the lion's share of the money is destined to go.

The Federation of American Scientists reports that among the companies in line for contracts over \$100 million are Boeing Aerospace, Lockheed Missiles and Space, LTV Aerospace, McDonnell Douglas Astronautics, and Teledyne Brown Engineering.

In the \$50 million and up category, the Federation lists Aerojet General, General Electric, Honeywell, Hughes Aerospace, Rockwell International, and TRW.

And for \$20 million and over, FAS includes Grumman Aerospace, ITEK Corp., Martin Marietta Aerospace, RCA Government Systems Division, and Westinghouse Electronics Corp. R&D Center.

are the best in the country.

SGR. How many people work directly for you?

IONSON. Right here in the central headquarters, we'll probably end up with 4 or 5, for the central planning and overall orchestration. But indirectly, through the agents and program managers, there are dozens.

SGR. How will your spending accelerate to get through that billion in the next 4 or 5 years?

IONSON. This office only started in November and December. I was just appointed about a month ago, officially. But this year, we'll probably have 8 or 9 different consortia. We will accommodate and look at

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## *Star Wars Tries to Make It Easy for Its R&D Applicants*

Sadism may reasonably be imputed to the designers of grant-application procedures at the well-established federal research agencies. But, as described in a brochure issued by the fledgling Star Wars Innovative Science and Technology Office, the process there is clearcut and relatively simple. Furthermore, it gives the impression that once a required "pre-proposal" gets past an initial screening, the chances for approval of a detailed proposal are fairly good.

The pre-proposal, or "white paper," is being used, says the brochure, because of "a strong tendency for both over-solicitation and unrealistic funding requests from otherwise excellent research groups with superior ideas. This has been our experience with the previous year's funding," it adds.

The white paper is "not to exceed 10 double-

spaced typewritten pages," plus "a rough outline of funding requirements . . ." SDI justifies it as follows: "Researchers are initially spared the laborious task of preparing a formal proposal document requiring corporate or university approval, since no budgetary details, lengthy resumes, or grandiose program definition need be included."

"By using the white paper as a screening process," the brochure continues, "excellent ideas can be coordinated with programmatic constraints before the detailed proposal submission process, hopefully avoiding the need for significant proposal alteration or rewrite later."

"It is anticipated that the white paper submission process will be used by the reviewing agencies to reduce the over-solicitation factor to about twice the available funding level," says the brochure.

## *... Everyone's Welcome to Propose R&D Projects*

*(Continued from page 3)*

ideas from all sources, from everyone.

*SGR. In and out of universities?*

IONSON. Anyplace. Academia, industry—small and large, the national laboratories, not-for-profit institutions. We have a completely open charter.

*SGR. But so far the direction seems to be toward universities.*

IONSON. So far, most of the good ideas are coming from the smaller businesses and the universities.

*SGR. What subjects will be handled by the additional consortia?*

IONSON. In materials, there are a number of areas. Metal matrix and carbon matrix composites; rocket fuels; tribological research—friction in space. In computing, SDI has some very specific computing needs: One is massive parallelism—rapid calculations; second is that we'll need millions and millions of lines of programming, for which we'll have to develop specialized computers which write computer programs so that the computer itself writes and checks computer programs; third is what we call optical systolic computing, where, instead of electrons carrying the information, it's protons. Protons move very fast and are not as subject to electromagnetic pulse from a nuclear explosion as electrons are. There will be a consortium in innovative space science, looking at, for example, how do we utilize a hostile environment to our advantage. If a nuclear explosion does go off in space, it pumps up the Van Allen radiation belts with a lot of particles, and you want to

get rid of those. There are ways that you can dump the Van Allen radiation belts. So, it's active manipulation of the environment.

Another area would be power—advanced non-nuclear as well as nuclear. So there are some very exotic concepts for nuclear reactors, both fission and fusion. We commonly hear noises to the effect that fusion reactors have not been invented, they don't work. That's true, they don't work for days and days and days. But it's very possible, and opens up a whole new ball game, that you could look at fusion reactors that work for 45 minutes. That's all we care about. As long as they work for 45 minutes to run the defensive systems, that's fine. That about runs the gamut for the consortia.

There are a lot of other little programs, on directed energy—individual contracts. We're almost there in awarding them. Within a month, there will be literally dozens and dozens of contracts. From the smallest university and smallest business in the country, to the largest university and largest industry. All over [the country].

*SGR. How do you tie in with the other parts of the SDI organization?*

IONSON. What we do is focus our attention on feeding in new ideas to the rest of SDI. We're what Abrahamson likes to call piglets. We're boxed off here so that the big hogs won't stomp us. It's very important to fence it.

*SGR. Will you provide fellowships for training graduate students or for supporting postdocs? Or funds for*

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## ... Briefing Drew Representatives from 125 Schools

(Continued from page 4)

*industrial people to work in a university?*

IONSON. The only thing we will be sponsoring is research. Now, if that research requires the training of an individual, then fine, we'll pay for that. But our first and foremost task is to perform the research. In the process of doing the research, people have to be trained. That will happen automatically. In a lot of these consortia, the professors don't have time, they can't possibly do all the work. And the professors' workforce is the research-assistant population.

*SGR. Why do you work with consortia of universities?*

IONSON. The practical reason is just staffing. It's easier to keep track of big blocks. Second, it's to promote independent creativity. The consortium will be allowed to evolve and grow on its own, without continuous day-to-day, in some cases, harassment by the government program manager. Each consortium has a lead institution that leads the day-to-day operations of the group. It's like a principal investigator.

### 3-Year Contracts

*SGR. Do you assure the consortia of support for a given number of years?*

IONSON. It's usually a 3-year contract.

*SGR. The universities in the first consortium are worthy institutions, but they are outside the mainstream...*

IONSON. I understand you. This is a common misconception. They are the tops in this particular area. They may be outside the mainstream overall—certainly they're not the Caltechs, the MITs. But there's no market now for this particular area, non-nuclear space power. And the fact that there is no market now is the reason you don't find it in some of the bigger institutions. There's no commercial market. Who's going to buy it?

*SGR. But a lot of major institutions do work without having an eye on the marketplace. They find it intellectually interesting or someone is putting up the money for it.*

IONSON. Ah, there it is. They may find it intellectually interesting, but someone has always got to put up the money. That's the key. You'll find all universities working on materials, because there's a market on it. The same for computers and electronics. But where is the market on a burst mode space power system? It just doesn't exist yet, but it will exist.

These [consortium] institutions have been working on it purely out of intellectual interest. That's the place to go if you want to do that particular type of work. In the consortia that will be announced very shortly, there will

be some major, very substantial institutions involved.

*SGR. Do the universities know that you're here and ready to do business?*

IONSON. They sure do. We get people coming in continuously. The MITs, Princetons, Caltechs come in, as well as Dayton Community College. We just had a review [March 29] with universities, where we presented the overall program. We had 250 deans and other people from 125 schools in 45 states. We didn't pay their way. We just announced that we're going to discuss this program, and they all showed up.

*SGR. What are the security requirements for this research?*

IONSON. The Office of the Secretary of Defense will shortly have a policy on this. The standing orders, which could change, are that work done on a university campus will be unclassified. If a university wants to, it can perform classified work. But we won't require it.

*SGR. Is all the work coming out of your office unclassified?*

IONSON. No, not all of it. There are threads of highly classified work. Bear in mind, our group of performers involves more than universities.

*SGR. Is there any classified work for which you're soliciting university participation?*

IONSON. What we do is go out and describe what the technical problem is, in general. The biggest problem is how to destroy an ICBM before it enters its mid-course phase, and leave it up to the imaginations and innovations of the community. We're in a position to assess whether or not those ideas are viable, and to steer those general ideas in the right direction. That's the way the solicitation is.

### Publication Policy

*SGR. Is there any provision about publication policy in the contracts?*

IONSON. Whatever policy that the Secretary of Defense decides upon for the Department of Defense, that's what we'll abide by. It's still being worked on, but until we're given orders otherwise, as far as I'm concerned, the classification issue will reside right here. And I'm a proponent of keeping work unclassified as much as possible, and if it does have to be classified, of informing the principal investigators, to make sure that they're in the know and in a position to steer their graduate students away from this fine line.

*SGR. How far will you range? Would you, for example, get involved with biotechnology?*

IONSON. We're not doing anything in biotechnology  
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## ... The Golden Rule: "Ye with the Gold, Rule"

(Continued from page 5)

right now, but it could have some bearing on computational systems. Organic material is highly non-linear, in a sense that when it's subjected to high levels of electromagnetic radiation, it can bend, distort, and its propagation characteristics can change rapidly. It may, it may not, be a viable material against a laser attack. It will squint, not get burned up. I don't know. I can't think of anything—maybe the mating habits of petunias—that [may not be considered of possible interest].

**SGR.** *How do you fit into the Defense Department's pre-existing organization of R&D?*

**IONSON.** As a Presidential initiative, this organization answers directly to the Secretary of Defense. Abrahamson reports directly to Secretary Weinberger. We report directly to Abrahamson. It's a straight line.

### Small Business Responsive

**SGR.** *Has small business been responsive to the program?*

**IONSON.** There are literally 300 proposals stacked up here now.

**SGR.** *If some one sends in a proposal, let's say to work on materials, what's the process for making a decision here?*

**IONSON.** If some has a neat idea, for example, on a very hard metal matrix deposit, he would look through our brochure. It tells who to call. For that activity, our program manager is someone at the Office of Naval Research (ONR). He's our agent.

**SGR.** *Your program managers are based in other organizations?*

**IONSON.** It's the golden rule again: Ye with the gold, rule. Although they work for ONR and OSR [Air Force Office of Scientific Research], and the Army and the Defense Nuclear Agency, the money they get comes from me. Although I don't sign their time card, I do sign the check that authorizes funds for them to implement a program.

**SGR.** *Can they say yes or no to a proposal?*

**IONSON.** They follow the standard review process that their agency or service is chartered to do. By and large, it's not peer review, because we're the peer. Let me put it this way: It is peer review, but we have to be very careful, noting that the peers are, by definition, people in the know, and the only people in the know are those within the government and intimately linked with SDI. A Nobel laureate who has never done any defense work, who does not know our mission, is really not a peer. And so we can't have them review the proposal. It has to be reviewed in a mission-oriented context. That's why it's kept inhouse.

**SGR.** *Is that because there's also concern about security?*

**IONSON.** No. They just don't know.

**SGR.** *But someone working in materials might not know a thing about Defense Department interests, but could know a lot about materials. In such a circumstance, would you go outside for the advice of a person like that?*

**IONSON.** Yes, but in general, it's not necessary to do that, because there are experts in materials residing right in the government. And even if the work is good science, it may not be relevant to the mission. That has to be checked. No matter what you do, it's always bounced back to the government program manager. The mission is central.

**SGR.** *Are researchers in other countries eligible for your money?*

**IONSON.** Weinberger has been over there talking to the NATO defense ministers, and as of today, we do not have the go-ahead to solicit or entertain proposals from overseas.

**SGR.** *Are there places and people abroad that you'd like to sign up?*

**IONSON.** Yeah. England, in fact, has very good efforts going in systolic computing. In fact, they may even be ahead of us in that area. In advanced nuclear  
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## Science-Policy Hearings Set

The following hearings schedule was issued April 1 by the House Science and Technology Committee's Task Force on Science Policy, which is conducting a 2-year study of science-government relations (SGR Vol. XIV, No. 21):

Role of the Research Museums, April 17  
Industry's View of Federal Science Policy, April 23, 24  
Big Science: High-Energy Physics, April 25  
The Future of US Science, May 2  
The Nobel Prizes and Science Policy (sic), May 15  
Government and the Research Infrastructure, May 21, 22  
International Cooperation in Science, June 18, 19, 20  
Science in the Political Process, June 25, 26  
Science and Engineering Education and Manpower, June 9, 10, 11; July 23, 24, 25  
Impact on Science of the Information Age, Sept. 10, 11, 12  
The Role of the Social Sciences, Sept. 17, 18, 19  
Science in the Mission Agencies, Oct. 2, 3, 4  
Science in the Government Laboratories, Oct. 22, 23, 24.  
Witnesses will be announced as they're signed up, the Task Force says. The schedule calls mainly for 2-hour sessions each day, usually beginning at 9:30 or 10 am, but, given the abrupt changes of schedule that often take place on Capitol Hill, onlookers are advised to call ahead: 202/225-1062 or 225-8056.

## ... For R&D, "Chance Comes Once in 30 Years"

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space power, there's a large contingent of experts in Europe, as well as in the accelerator domain. There are a lot of very good ideas over there. The big issue will be, first, are we willing to share our secrets with them, and, just as important, are they willing to share their secrets with us? The policy has not been established. It's being worked out.

*SGR. How are bureaucratic relations developing here? After all, you're in a field that's crowded with many other agencies.*

IONSON. We just shove them out of the way. It's a Presidential Initiative, it's been given high priority in the eyes of the President, and we've been able to do a lot to cut through the bureaucracy.

*SGR. Give an example.*

IONSON. This office, and me coming from being a research scientist at the Goddard Space Flight Center, and going to one of the top positions in this organization. There's a case in point. Where else could something like this happen? There's no way it would happen elsewhere. I think that's the best example. This is a new directorate. I hold an SES (Senior Executive Service) position. I have totally decoupled from NASA. It's something that only could take place if the Director of the organization was able to break through a lot of the bureaucratic—the big bodies bouncing around. This is a very, very powerful organization, because it's backed by the President.

*SGR. When you arrived, did the General give you any marching orders?*

IONSON. No. Just run with the ball. That's the beauty of this organization. If I was given specific marching orders on exactly what to do, that would stifle the whole point of this office. It is our job to coordinate with these people, but it's also our job to harrass them. New technologies—that's what we're here for. The only marching order was: Try to get the most brilliant minds in our country involved in this program.

*SGR. Are the consortia formal, legal entities, or are they more like floating crap games?*

IONSON. Like a floating crap game. They're not formal, legal entities backed up by stacks and stacks of paper. If that is what is required to bring these people together, then I don't want it. They have got to want to work together. A common interest, a camaraderie. Like the Manhattan Project. What happened back then? A bunch of scientists would come and introspect together and start solving a specific problem.

*SGR. Did you model this by researching the Manhattan Project?*

IONSON. Not really. I know of it because I've been to Los Alamos a trillion times. It's just a number of

researchers with common interests, maybe different hidden agendas—I don't know—but the point is they have got to want to work together toward a particular goal, and not be tied together by a thousand pages of legal manuscripts. I don't care how thick the document is, if they don't want to work together, they won't work together. Very little paper is involved. The contact is through day-to-day, continuous interactions between my office staff, the program managers, and those people out there.

*SGR. What will be the procedure for evaluating performance?*

IONSON. If the [SDI] technology directorates absorb some of the product that comes out of here, that's a measure of success. These are the users. If someone, under our directorate, comes up with a revolutionary scheme for space power, and that finds a user that goes on to develop it, that's a measure of success. If nothing flows [from here] into these other technology directorates in a few years, then this directorate will disappear. This is a chance that comes once every 30 years, if that, for the science and technology community. If they blow it, I'll go back and do research astrophysics, but the community will suffer. That's the message.

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## Committee Cautions on SSC

Several paternalistic cautions about the prospects for the Superconducting Super Collider (SSC) have been issued by a House Subcommittee which has so far backed the early steps toward building the colossal particle accelerator (SGR Vol. XV, No. 6).

Stressing that it's been an SSC supporter from the start, the House Science and Technology Subcommittee on Energy Development and Applications warned in its authorization report April 2 that "the basic issue facing the SSC for the next several years is not when and where the SSC will be built; rather the issue is whether or not the SSC should built."

Warning that SSC's magnets are likely to cost "well in excess of \$1 billion," the Subcommittee expressed concern about the reliability of forthcoming cost estimates and about the advisability of sticking to the schedule that calls for completing a detailed budget in time for fiscal 1988.

The Subcommittee also said that it's concerned "about the lack of industrial and foreign participation in the project" and warned that "Very careful planning is necessary so as not to repeat mistakes of the past and to improve the possibility of achieving coordination with international research activities."

## NSF Halves Number of Presidential R&D Awards

Big hype was the order of the day two years ago when the Administration proudly announced the Presidential Young Investigators Program, designed to keep scarce engineering and science faculty from moving to industrial jobs. The program continues, but without any announcement, it's been cut in half for next year. What comes after that, is beyond forecast.

As originally announced, the program aimed to curb faculty departures and encourage universities to recruit from industry by annually providing 200 5-year awards of up to \$100,000 a year in research money for the lusted-after specialties. After 5 years, the program was to level off with a constant enrollment of 1000 investigators in the system. The formula called for academe to pay the salaries, while NSF would provide \$25,000 a year per investigator, and match, up to \$37,500, contributions from industry.

"Young" was defined as no more than 7 years beyond the PhD, in the view of the White House Office of Science and Technology (OSTP), which devised the program as both an antidote to faculty shortages and an opportunity for industry to do what Democrats would routinely assign to government.

The program was instantly popular on campus, with the recently announced second round of awards drawing 1089 nominations from 195 PhD-granting institutions, according to NSF. Its progenitor, White House Science Adviser George A. Keyworth II, would often refer to it in public addresses as evidence of enlightened Administration policy and

industrial responsibility.

But, as it turned out, industry hasn't been showering support on the institutions that produce the manpower it covets. So far, the industrial matching is only two-thirds of the way toward the goal of \$37,500 per award. There's expressed hope, however, that industry will see value in the program and increase its support.

But OSTP, meanwhile, is unhappy about something else—what it sees as insufficient youthfulness among the winners. With the median Presidential Investigator 4.5 years past the PhD in the 400 appointed so far, OSTP has told NSF to think younger in selecting the next batch, for which the deadline for applications is July 1. As a result, the PhD cutoff has been moved to January 1982, except for applicants who have spent a year or 2 in industry.

Along with that shift, the new regime at NSF quietly cut the number of awards for next year down to 100—a reduction that was not mentioned in Director Erich Bloch's prepared Congressional testimony on the NSF budget.

Given constant handwringing by Bloch and Keyworth over shortages of university faculty and specialized manpower for industry, what's the explanation for cutting this financially modest but highly touted program after just 2 years? Bloch cited "priorities" in response to an inquiry from SGR.

The real answer is that in Washington, nothing is more fashionable, or perishable, than a low-budget program that's sold as a miracle-maker.

Science & Government Report  
Northwest Station  
Box 6226A  
Washington, D.C. 20015

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